WHAT IS CLAIMED IS:

1. A cold gas spraying method of producing a coating or a structural part, comprising:

expanding a gas jet using a Laval nozzle;

injecting powdery spraying particles into the gas jet; and

accelerating the spraying particles to a speed of up to 2000 m/s; wherein

the spraying particles are injected into the gas jet axially and centrically, and at a location in the gas jet that is downstream in the spraying direction from a nozzle neck of the Laval nozzle.

2. A cold gas spraying method according to claim 1, wherein the spraying particles are injected into the gas jet by a powder tube arranged coaxially in an outer nozzle body and oriented in a spraying direction, and wherein the Laval nozzle is formed by an outer shape of the powder tube and an inner shape of the outer nozzle body.

3. A cold gas spraying method according to claim 1, wherein the spraying particles are injected into the gas jet at a location that is downstream of the nozzle neck in the spraying direction by between about one quarter and one half of the distance from the nozzle neck to a nozzle exit.

4. A cold gas spraying method according to claim 1,

wherein the spraying particles are injected in a divergent section of the Laval nozzle at a pressure of less than two thirds of an output pressure.

5. A cold gas spraying method according to claim 1,

wherein the nozzle neck has an annular cross-section which is bounded by an outer contour of the powder tube on the inside and by an inner contour of a nozzle tube on the outside.

6. A cold gas spraying method according to claim 1,

wherein the spraying particles are accelerated to a speed of at least 100 m/s.

7. A cold gas spraying method according to claim 1,

wherein the spraying particles are accelerated to a speed of at least 350 m/s.

8. A cold gas spraying method according to claim 1,

wherein the spraying particles are accelerated to a speed of at least 500 m/s.

9. A cold gas spraying system having a Laval nozzle comprising an outer nozzle body and a powder tube capable of feeding spraying particles into the outer nozzle body,

wherein the powder tube ends in a divergent section of the Laval nozzle and is

aligned axially and centrically with the outer nozzle body.

10. A cold gas spraying system according to claim 9,

wherein the Laval nozzle is formed by an inner shape of the outer nozzle body together with an outer shape of the powder tube arranged coaxially in the outer nozzle body and oriented in the spraying direction.

11. A cold gas spraying system according to claim 9,

wherein an annular area for passage of a gas flow, which is defined as an area between an outer contour of the powder tube and an inner contour of the outer nozzle, has a size of between about 1 to 30 mm^2 at a nozzle neck.

12. A cold gas spraying system according to claim 11, wherein the size of the annular area at the nozzle neck is between about 3 to 10 mm^2.

13. A cold gas spraying system according to claim 9,

wherein a contour of an outer side of the powder tube together with a smooth cylindrical contour of the outer nozzle body form the Laval nozzle.

14. A cold gas spraying system according to claim 9,

wherein the powder tube has a smooth cylindrical outer side and the nozzle body is shaped on its inner side such that a Laval nozzle is formed.

15. Cold gas spraying system according to claim 9,

wherein the contour necessary for formation of a Laval nozzle is partially provided by an outer side of the powder tube and partially by an inner side of the outer nozzle body.

16. Cold gas spraying system according to claim 9,

wherein the opening ratio of the Laval nozzle, defined by the ratio of the cross-sectional area for the gas passage at the narrowest point to the cross-section at the outlet of the nozzle, is between 1:2 and 1:25.

17. A cold gas spraying system according to claim 16, wherein the opening ratio of the Laval nozzle is between 1:5 and 1:11.